



Approved for use through 7/31/2006. OMB 0651-0032  
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

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*Effective 10/01/2003. Patent fees are subject to annual revision.*

☒ Applicant claims small entity status. See 37 CFR 1.27

<b>TOTAL AMOUNT OF PAYMENT</b>	<b>(\$)</b>	<b>390.00</b>
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**Complete if Known**

Application Number	09/800,435
Filing Date	March 5, 2001
First Named Inventor	Stephen R. Quake
Examiner Name	C. Mahatan
Art Unit	1631
Attorney Docket No.	03153/100G765-US1

**METHOD OF PAYMENT** (check all that apply)

<input checked="" type="checkbox"/>	Check	<input type="checkbox"/>	Credit Card	<input type="checkbox"/>	Money Order	<input type="checkbox"/>	Other	<input type="checkbox"/>	None
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☐ Deposit Account:

Deposit  
Account  
Number

04-0100

Deposit  
Account  
Name

**Darby & Darby P.C.**

**The Director is authorized to:** (check all that apply)

Charge fee(s) indicated below	X	Credit any overpayments
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☒ Charge any additional fee(s) or any underpayment of fee(s)

☐ Charge fee(s) indicated below, except for the filing fee to the above-identified deposit account.

### FEE CALCULATION

## 1. BASIC FILING FEE

Large Entity		Small Entity		Fee Description	Fee Paid
Fee	Fee	Fee	Fee		
Code	(\$)	Code	(\$)		
1001	770	2001	385	Utility filing fee	
1002	340	2002	170	Design filing fee	
1003	530	2003	265	Plant filing fee	
1004	770	2004	385	Reissue filing fee	
1005	160	2005	80	Provisional filing fee	

<b>SUBTOTAL (1)</b>	<b>(\$)</b>	<b>0.00</b>
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## 2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

	Extra Claims	Fee from below	Fee Paid
Total Claims <input type="text" value="105"/> -20** =	<input type="text"/>	<input type="text"/>	<input type="text"/>
Independent Claims <input type="text" value="3"/> -3** =	<input type="text"/>	<input type="text"/>	<input type="text"/>
Multiple Dependent		<input type="text"/>	<input type="text"/>

Large Entity		Small Entity		Fee Description
Fee Code	Fee (\$)	Fee Code	Fee (\$)	
1202	18	2202	9	Claims in excess of 20
1201	86	2201	43	Independent claims in excess of 3
1203	290	2203	145	Multiple dependent claim, if not paid
1204	86	2204	43	** Reissue independent claims over original patent
1205	18	2205	9	** Reissue claims in excess of 20 and over original patent

<b>SUBTOTAL (2)</b>	<b>(\$)</b>	<b>0.00</b>
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**\*\*or number previously paid, if greater. For Reissues, see above**

**FEE CALCULATION (continued)**

### 3. ADDITIONAL FEES

Large Entity		Small Entity		Fee Description	Fee Paid
Fee Code	Fee (\$)	Fee Code	Fee (\$)		
1051	130	2051	65	Surcharge – late filing fee or oath	
1052	50	2052	25	Surcharge – late provisional filing fee or cover sheet.	
1053	130	1053	130	Non-English specification	
1812	2,520	1812	2,520	For filing a request for <i>ex parte</i> reexamination	
1804	920*	1804	920*	Requesting publication of SIR prior to Examiner action	
1805	1,840*	1805	1,840*	Requesting publication of SIR after Examiner action	
1251	110	2251	55	Extension for reply within first month	
1252	420	2252	210	Extension for reply within second month	210.00
1253	950	2253	475	Extension for reply within third month	
1254	1,480	2254	740	Extension for reply within fourth month	
1255	2,010	2255	1,005	Extension for reply within fifth month	
1401	330	2401	165	Notice of Appeal	
1402	330	2402	165	Filing a brief in support of an appeal	
1403	290	2403	145	Request for oral hearing	
1451	1,510	1451	1,510	Petition to institute a public use proceeding	
1452	110	2452	55	Petition to revive – unavoidable	
1453	1,330	2453	665	Petition to revive - unintentional	
1501	1,330	2501	665	Utility issue fee (or reissue)	
1502	480	2502	240	Design issue fee	
1503	640	2503	320	Plant issue fee	
1460	130	1460	130	Petitions to the Commissioner	
1807	50	1807	50	Processing fee under 37 CFR 1.17(q)	
1806	180	1806	180	Submission of Information Disclosure Stmt	180.00
8021	40	8021	40	Recording each patent assignment per property (times number of properties)	
1809	770	2809	385	Filing a submission after final rejection (37 CFR 1.129(a))	
1810	770	2810	385	For each additional invention to be examined (37CFR 1.129(b))	
1801	770	2801	385	Request for Continued Examination (RCE)	
1802	900	1802	900	Request for expedited examination of a design application	

Other fee (specify)

\*Reduced by Basic Filing Fee Paid

<b>SUBTOTAL (3)</b>	<b>(\$)</b>	<b>390.00</b>
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## SUBMITTED BY

Name (Print/Type)	Samuel S. Woodley, Ph.D.
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Registration No.  
(Attorney/Agent)

43.287

(Complete (if applicable))

<b>Telephone</b>	(212) 527-7610
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Signature \_\_\_\_\_

Samuel S. Woods

Date \_\_\_\_\_

July 9, 2004
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Express Mail Label No.

Dated: \_\_\_\_\_



Express Mail Label No. \_\_\_\_\_

Dated: \_\_\_\_\_

Docket No.: 03153/100G765-US1  
(PATENT)

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Patent Application of:  
Stephen R. Quake et al.

Application No.: 09/800,435

Confirmation No.: 2542

Filed: March 5, 2001

Art Unit: 1631

For: COMBINATORIAL ARRAY FOR NUCLEIC  
ACID ANALYSIS

Examiner: C. Mahatan

**REQUEST FOR EXTENSION OF TIME**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

Applicant hereby petitions for a two month extension of time to and including  
July 17, 2004 to respond to the Office Action mailed February 17, 2004.

In the event that a further petition for an extension of time is required to be submitted at  
this time, applicant hereby petitions under 37 CFR 1.136(a) for an extension of time for as many  
months as are required to ensure that the above-identified application does not become abandoned.

{W:\03153\100G765US1\00215760.DOC [REDACTED]}

07/14/2004 WABDEL1 00000147 09800435  
01 FC:2252 210.00 OP

Our check in the amount of \$210.00 covering the Small Entity Extension fee set forth in 37 CFR 1.17(a)(2) is enclosed. The Commissioner is authorized to charge any deficiency of up to \$300.00 or credit any excess in this fee to Deposit Account No. 04-0100.

Dated: July 9, 2004

Respectfully submitted,

By Samuel S. Woodley  
Samuel S. Woodley, Ph.D.  
Registration No.: 43,287  
DARBY & DARBY P.C.  
P.O. Box 5257  
New York, New York 10150-5257  
(212) 527-7700  
(212) 753-6237 (Fax)  
Attorneys/Agents For Applicant



Express Mail Label No. \_\_\_\_\_

Dated: \_\_\_\_\_

Docket No.: 03153/100G765-US1  
(PATENT)

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Patent Application of:  
Stephen R. Quake et al.

Application No.: 09/800,435

Confirmation No.: 2542

Filed: March 5, 2001

Art Unit: 1631

For: COMBINATORIAL ARRAY FOR NUCLEIC  
ACID ANALYSIS

Examiner: C. Mahatan

**SUBSTITUTE INFORMATION DISCLOSURE STATEMENT (IDS)**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

In order to comply with the duty to disclose information under 37 C.F.R. §1.56, Applicants submit herewith an Information Disclosure Statement pursuant to 37 C.F.R. §§1.97 and 1.98. In particular, Applicants submit herewith a Form PTO/SB/08a (Substitute to Form PTO-1449) listing references 1-24 for consideration by the Examiner. A copy of each reference cited in the accompanying Form PTO/SB/08a is also submitted. A Fee Transmittal Sheet also accompanies these submissions, together with the fee required in 37 C.F.R. § 1.97(c)(2) and § 1.17(p). Finally, a Petition for Extension of Time also accompanies these submissions, together with the estimated extension fee, requesting that the time period for responding to the Official Action dated February 17, 2004 be extended for a period of two (2) months – *i.e.*, from **MAY 17, 2004** up to and including **MONDAY, JULY 19, 2004**. It is believed that no additional fee is required for these submissions. However, should the U.S. Patent and Trademark Office determine that any additional fee is required or that any refund is due for this application, the Commissioner is hereby authorized and requested to charge any required fee(s) and/or to credit any refund(s) due to our Deposit Account No. 04-0100.

{W:\03153\100G765US1\00211216.DOC [REDACTED] }

07/14/2004 WABDELRI 00000147 09800435

100.00 DP

02 FC:1806

This Substitute Information Disclosure Statement (IDS) is provided as a substitute to the IDS originally submitted on August 3, 2001 for this application. The Examiner objected to the original IDS, in an Official Action dated February 17, 2004, alleging that the original IDS as submitted is missing pages 2-3 of Form PTO-1449. The Examiner also suggested that a new IDS be provided, with copies of the cited references, for consideration in connection with this application. Applicants' regret the error and are submitting this Substitute IDS (with copies of the cited references) pursuant to the Examiner's suggestion. It is noted that the references cited and submitted with this Substitute IDS are identical to those cited and submitted in Applicants' original IDS of August 23, 2001. Although this Substitute IDS is being submitted in response to a specific objection set forth in the Official Action of February 27, 2004, its submission should not be taken as a response to that Official Action. Rather, a complete response to the Official Action will be submitted in due course.

It is requested that each document cited (including any reference or other document cited in Applicant's specification which is not repeated in the attached Form PTO-1449) be given thorough consideration by the Examiner, and that it be cited of record in the prosecution history of this application by initialing Form PTO-1449 next to the document. Such initialing is requested even if the Examiner does not consider a cited document to be sufficiently pertinent to use in a rejection or otherwise does not consider it to be prior art for any reason. This is requested so that each document becomes listed on the face of the patent issuing on the present application.

Although this Information Disclosure Statement is being submitted in compliance with 37 C.F.R. §1.56, the citation of a document in the accompanying Form PTO-1449 is not to be construed as an admission that such document is necessarily relevant or that the document is prior art to the present application. No representation is intended that the cited documents represent the results of a complete search, and it is anticipated that the Examiner, in the normal course of examination, will make an independent search and will determine the best prior art consistent with 37 C.F.R. §§1.104(a) and 1.106(b).

Early and favorable consideration is earnestly solicited.

Respectfully submitted,

Dated: July 9, 2004

By Samuel S. Woodley  
Samuel S. Woodley, Ph.D.  
Registration No.: 43,287

DARBY & DARBY P.C.

P.O. Box 5257

New York, New York 10150-5257

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(212) 753-6237 (Fax)

Attorneys/Agents For Applicant



PTO/SB/08a/b (08-03)  
Approved for use through 07/31/2006. OMB 0651-0031  
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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<b>Substitute for form 1449A/B/PTO</b>  <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  (Use as many sheets as necessary)				<b>Complete if Known</b>	
				Application Number	09/800,435
				Filing Date	March 5, 2001
				First Named Inventor	Stephen R. Quake
				Art Unit	1631
				Examiner Name	C. Mahatan
Sheet	1	of	2	Attorney Docket Number	03153/100G765-US1

U.S. PATENT DOCUMENTS					
Examiner Initials*	Cite No. <sup>1</sup>	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code <sup>2</sup> (if known)			
	1.	US-5,922,591	07-13-1999	ROLFE C. ANDERSON	
	2.	US-5,143,854	09-01-1992	MICHAEL C. PIRRUNG	
	3.	US-5,525,464	06-11-1996	RADOJE T. DRMANAC	
	4.	US-5,807,522	09-15-1998	PATRICK O. BROWN	

FOREIGN PATENT DOCUMENTS							
Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document		Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T <sup>6</sup>
		Country Code <sup>3</sup> -Number <sup>4</sup> -Kind Code <sup>5</sup> (if known)					
	5.	WO-99/36760		07-22-1999	JAMES W. OVERBECK et al.		

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

NON PATENT LITERATURE DOCUMENTS				
Examiner Initials <sup>1</sup>	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>	
	6.	K.J. BRESLAUER, et al. "Predicting DNA duplex stability from the base sequence." Proc. Natl. Acad. Sci. USA, 83:3746-3750, 1986.		
	7.	M.L. BULYK, et al. "Quantifying DNA-protein interactions by double-stranded DNA arrays." Nature Biotechnology, 17:573-577, 1999.		
	8.	M. CHEE, et al. "Accessing genetic information with high-density DNA arrays." Science, 274:610-614, 1996.		
	9.	SNEZANA DRMANAC et al.. "Accurate sequencing by hybridization for DNA diagnostics and individual genomics." Nature Biotechnology, 16:54-58, 1998.		
	10.	ALEXANDER V. FOTIN et al. "Parallel thermodynamic analysis of duplexes on oligodeoxyribonucleotide microchips." Nucleic Acids Research, 26:1515-1521, 1998.		
	11.	ZHEN GUO et al. "Enhanced discrimination of single nucleotide polymorphisms by artificial mismatch hybridization." Nature Biotechnology, 15:331-335, 1997.		
	12.	JORG D. HOHEISEL. "Sequence-independent and linear variation of oligonucleotide DNA binding stabilities." Nucleic Acids Research. 24:430-432, 1996.		
	13.	GABOR L. IGLOI. "Variability in the stability of DNA-peptide nucleic acid (PNA) single-base mismatched duplexes: Real-time hybridization during affinity electrophoresis in PNA-containing gels." Proc. Natl. Acad. Sci. USA, 95:8562-8567, 1998.		
	14.	IGOR V. KUTYAVIN et al. "3'-Minor groove binder-DNA probes increase sequence specificity at PCR extension temperatures." Nucleic Acids Research. 28:655-661, 2000.		
	15.	ROGELIO MALDONADO-RODRIGUEZ et al. "Mutation Detection by Stacking Hybridization on Genosensor Arrays." Molecular Biotechnology. 11:13-25, 2000.		
	16.	MATTHEW J. MARTON et al. "Drug target validation and identification of secondary drug target effects using DNA microarrays." Nature Medicine, 4:1293-1301, 1998.		
	17.	BJORN PERSSON et al. "Analysis of Oligonucleotide probe affinities using surface plasmon resonance: A means for mutational scanning." Analytical Biochemistry, 246:34-44, 1997.		

Examiner Signature	Date Considered
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<b>Substitute for form 1449A/B/PTO</b>  <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  <i>(Use as many sheets as necessary)</i>				<b>Complete if Known</b>	
				Application Number	09/800,435
				Filing Date	March 5, 2001
				First Named Inventor	Stephen R. Quake
				Art Unit	1631
				Examiner Name	C. Mahatan
Sheet	2	of	2	Attorney Docket Number	03153/100G765-US1

	18.	MARK SCHENA et al. "Quantitative Monitoring of Gene Expression Patterns with a Complementary DNA Microarray." Science, 270:467-470, 1995.	
	19.	RONALD G. SOSNOWSKI et al. "Rapid determination of single base mismatch mutations in DNA hybrids by direct electric field control." Proc. Natl. Acad. Sci. USA, 94:1119-1123, 1997.	
	20.	E.M. SOUTHERN et al. "Analyzing and comparing nucleic acid sequences by hybridization to arrays of oligonucleotides: Evaluation using experimental models." Genomics, 13:1008-1017, 1992.	
	21.	PAUL T. SPELLMAN et al. "Comprehensive identification of cell cycle-regulated genes of the yeast Saccharomyces cerevisiae by microarray hybridization." Molecular Biology of the cell, 9:3273-3297, 1998.	
	22.	ANDREY A. STOMAKHIN et al. "DNA sequence analysis by hybridization with oligonucleotide microchips: MALDI mass spectrometry identification of 5mers contiguously stacked to microchip oligonucleotides." Nucleic Acids Research, 28:1193-1198, 2000.	
	23.	GENNADY YERSHOV et al. "DNA analysis and diagnostics on oligonucleotide microchips." Proc. Natl. Acad. Sci. USA, 93:4913-4918, 1996.	
	24.	STEPHEN P.A. FODOR et al. "Light-directed, spatially addressable parallel chemical synthesis." Science, 251:767-773, 1991.	

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup>Applicant's unique citation designation number (optional). <sup>2</sup>Applicant is to place a check mark here if English language Translation is attached.

Examiner Signature		Date Considered	
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Application No. (if known): 09/800,435

Attorney Docket No.: 03153/100G765-US1

## Certificate of Express Mailing Under 37 CFR 1.10

I hereby certify that this correspondence is being deposited with the United States Postal Service as Express Mail, Airbill No. \_\_\_\_\_ in an envelope addressed to:

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7/9/04  
Date

B.W. Lee  
Signature

B.W. LEE

Typed or printed name of person signing Certificate

Note: Each paper must have its own certificate of mailing, or this certificate must identify each submitted paper.

1. Form SB/08/a/b (2 page);
2. Substitute Information Disclosure Statement (3 pages) submitted with references (Tabs 1-24);
3. Fee Transmittal Sheet (1 page)
4. Petition for Extension of Time (1 page) and
5. Check No. 5488 in the amount of \$390.00